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09/822,220	04/02/2001	Yoshio Kajiura	0020-4829P	1095

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EXAMINER

TSANG FOSTER, SUSY N

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/822,220

Applicant(s)

KAJIURA ET AL.

Examiner

Susy N Tsang-Foster

Art Unit

1745

-- Th MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2003 and 26 February 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-5 is/are rejected.
- 7) ☒ Claim(s) 1 and 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☒ Certified copies of the priority documents have been received in Application No. 09/125,452.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is responsive to the amendments filed on 2/19/2003 and 2/26/2003. Claims 1 and 2 have been amended. Claims 3-5 have been added. Claims 1 and 2 are objected to. Claims 3-5 are finally rejected for reasons necessitated by the amendment.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

3. The abstract of the disclosure is objected to because it is unclear what is meant by "mixing the calcined powders organic fibers and/or organic polymer particles to form a raw mixture". It appears that the phrase should be written as "mixing the calcined powders with organic fibers or organic polymer particles to form a raw mixture." It is noted that mixing the calcined powder with both organic fibers and organic polymer particles does not appear to be disclosed in the specification. Therefore, step (d) of the abstract should be "heating the raw electrode to remove any organic fibers or any organic polymer particles" instead of "heating the raw electrode to remove any organic fibers and any organic polymer particles".

Correction is required. See MPEP § 608.01(b).

***Claim Objections***

4. Claims 1-3 and 5 are objected to because of the following informalities:

In claim 1, the limitations “calcining a raw material containing a lithium compound under an oxidizing atmosphere to form calcined powders”, “forming said calcined powders to shape of an electrode”, and “calcining the formed calcined powders under the oxidizing atmosphere, thereby obtaining a porous sintered electrode” are slightly confusing since the various forms of the word “form” are used to describe different states of the calcined powders. The Examiner is interpreting the phrase “calcining a raw material containing a lithium compound under an oxidizing atmosphere to form calcined powders” as “calcining a raw material containing a lithium compound under an oxidizing atmosphere to produce calcined powders” and it is recommended to the applicants to incorporate this change in the claim so that the limitation “calcining the formed calcined powders under the oxidizing atmosphere” is step (c) clearly refers to the formed calcined powders of step (b) and not the calcined powders of step (a).

It is also recommended to rewrite the limitation “calcining a raw material containing a lithium compound under an oxidizing atmosphere to form calcined powders” as “calcining a raw material containing a lithium compound under an oxidizing atmosphere to produce calcined powders” in claims 2 and 3 for the same reasons given for claim 1.

For the purposes of prosecution, the term “formed” in the claims is interpreted by the Examiner to mean “shaped”.

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In claim 2, the limitation "said organic polymer particles" in the penultimate line of the claim does not have antecedent basis in the claim. It appears that applicants unintentionally left out the limitation "organic polymer particles" in step (b) of independent claim 2 since this step (b) appears to parallel step (b) of independent claim 1 which recites "incorporating organic fibers or organic polymer particles thereinto". For the purposes of prosecution, the limitation "forming said calcined powders to shape of an electrode after incorporating organic fibers thereinto" in step (b) of claim 2 is interpreted by the Examiner as "forming said calcined powders to shape of an electrode after incorporating organic fibers or organic polymer particles thereinto."

In claim 3, the limitation "heating said raw electrode to remove any organic fibers and any organic polymer particles" is not grammatically consistent with the limitation "a material selected from the group consisting of organic fibers and organic polymer particles" in step (b) of the claim since the limitation in step (b) does not recite a mixture of the organic fibers and organic polymer particles as a member in the Markush group.

In claim 5, the limitation "calcining in step (c)" in lines 3 and 7 of the claim should be "calcining in step (d)" in order to maintain consistency with claim 3. Step (c) in claim 3 is not a calcining step. For the purposes of prosecution, the limitation is interpreted as "calcining in step (d)".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 3-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 3, the limitation “heating said raw electrode to remove any organic fibers and any organic polymer particles” does not appear to be supported by the specification since both organic fibers and organic polymer particles are not added to the calcined powders. Instead, the specification discloses that either organic fibers or organic polymer particles are added to the calcined powders (see pages 6 and 8 of the specification) .

Claims 4 and 5 depending from claim 3 are also rejected for the same.

In claim 4, the limitation “wherein the heating of step (d) is conducted at a temperature of from about 600 °C to about 1500 °C” does not appear to be in the original disclosure. Instead, the specification discloses a process for producing a negative electrode comprising the step of calcining a mixture of silicon and carbon under a non-oxidizing atmosphere from 600 to 1500 °C (see pages 7-8 of the specification) in contrast to the process for producing a positive electrode recited in instant claim 4.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 709906

A1.

EP 709906 A1 discloses a process for producing a porous sintered positive electrode for a secondary battery comprising the steps of:

mixing 0.5 mol lithium carbonate (a lithium compound) and 1 mol of cobalt carbonate and calcining (baking) the raw material mixture in air (an oxidizing atmosphere) at a temperature of 900 degrees Celsius for 5 hours to produce  $\text{LiCoO}_2$  ( which is a calcined powder) which was then ball-milled to powders with a mean size of 10 microns (page 5, lines 30-35);

forming the  $\text{LiCoO}_2$  powders to a pellet shaped raw electrode after polyethylene powders (organic polymer particles) were mixed in;

calcining (baking) the pellet shaped raw electrode in air (an oxidizing atmosphere) at a temperature of 900 degrees Celsius for 3 hours to produced a sintered mass of  $\text{LiCoO}_2$  (a porous sintered positive electrode) that is 15.5 mm in diameter with a volumetric density of 3.1 g/ml (page 5, lines 35-40). The reference also discloses that no binder, which are polyethylene powders in the process given above, is contained in the final calcined (sintered) product (page 3, lines 3-14).

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The temperature of 900 degrees Celsius in the heating step to form the porous sintered positive electrode falls within the claimed range of from about 600 °C to about 1500 °C.

***Response to Arguments***

9. Applicant's arguments filed 2/19/2003 have been fully considered but they are not persuasive.

*Applicants assert that Yamahira (EP 709906 A1) does not disclose calcining the formed calcined powders to form the porous electrode in an oxidizing atmosphere as recited in step (c) of all the instant claims but instead the reference discloses calcining in a nitrogen atmosphere on page 7, line 24.*

In response, the applicants has focused on a different embodiment of the Yamahira reference that was not relied upon by the Examiner in the previous office action. In art rejections based on Yamahira in the previous office action, the Examiner specifically referred to the embodiment on page 5, lines 35-40 of the Yamahira reference where it clearly discloses that the formed calcined powdered are calcined in an oxidizing atmosphere to form the porous sintered positive electrode.

Rejection of claim 2 under 35 USC 103(a) as being unpatentable over Yamahira in view of Kamauchi et al. in the previous office action is withdrawn in view of applicants' amendment to claim 2. Therefore, applicants' arguments regarding Kamauchi et al. are moot.

***Allowable Subject Matter***

10. Claims 1 and 2 contain allowable subject matter and would be allowable if the above objections are addressed.



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11. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, first paragraph and claim objections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

The closest prior art of record, EP 709906 A1 discloses a process of producing a positive electrode for a secondary battery where the process comprises the steps of calcining a raw material containing a lithium compound under an oxidizing atmosphere to produce calcined powders; forming the calcined powders to shape of an electrode after mixing with polyethylene powders (organic polymer particles), and calcining the formed (shaped) calcined powders under an oxidizing atmosphere at a temperature that is equal to the temperature used to calcine the raw material to produce the calcined powders and for a period of time that is shorter than the period of time conducted for calcining the raw material to produce the calcined powders.

However, the reference does not disclose, teach, or suggest calcining the formed (shaped) calcined powders under an oxidizing atmosphere at a temperature that is higher than the temperature used to produce the calcined powders and for a period of time that is longer than the period of time conducted for calcining the raw material to produce the calcined powders.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (703) 305-0588. The examiner can normally be reached on Monday through Thursday from 9:30 AM to 8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (703) 308-2383. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900.

The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After-Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

st/8 May 2003

*Susy Tsang-Foster*